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REMARKS

Claims 1-20 are pending herein.

I. The claim rejections based on Nedblake (US 6,598,531) in view of Young (US 6,561,640).

The USPTO respectfully rejects Claims 1-20 under 35 U.S.C. § 103(a) as being obvious over Nedblake in view of Young. Claims 1, 8, and 15 are independent claims.

Applicants respectfully note that the USPTO refers to the Hirai reference on page 2 of the Office Action. It is respectfully believed that the USPTO intended to refer to the Nedblake reference and not the Hirai reference.

A. The cited references do not teach or suggest that the quantity of ultraviolet rays emitted from the ultraviolet ray source arranged on the **most downstream side** in the feeding direction of the recording medium is set to be larger than the quantity, intensity, or wavelength emitted from the other ultraviolet ray irradiating devices, as claimed in claim 1.

Claim 1 claims in relevant part:

> "wherein a **quantity** of the ultraviolet ray emitted from the ultraviolet ray source **arranged on the most downstream side** in the feeding direction of the recording medium, in the plurality of pairs, **is set to be larger** than that of the ultraviolet rays emitted from the ultraviolet ray source or the ultraviolet ray sources of the other ultraviolet ray irradiating device or each of the other ultraviolet ray irradiating devices." **(emphasis added)**

Regarding these limitations, it is respectfully not seen where the cited references teach or suggest the claimed structure quoted above.

Specifically, the USPTO respectfully admits on pages 2-3 of the Office Action that Nedblake (Applicants respectfully assume that the USPTO means Nedblake) does not teach or suggest that the quantity, intensity, or wavelength of the UV device that is arranged **on the most downstream side** in the feeding direction of the recording medium **is set to be larger than in the other UV device.** The USPTO respectfully attempts to overcome this deficiency in Nedblake by citing the Young reference.

Specifically, Young allegedly teaches in column 4, lines 50-60 that the wavelength of the UV device can be "properly selected." However, it is respectfully important to note that Young only allegedly teaches selecting the wavelength; Young respectfully does not teach or suggest anything about selecting the quantity of ultraviolet rays. It is respectfully important to note that the quantity of UV rays claimed in claim 1 is a completely different property than the wavelength of UV rays taught in Young.

Additionally, it is further respectfully important to note that **Young teaches nothing about the wavelength of the most downstream device in relation to the other UV devices.** The USPTO respectfully attempts to avoid this shortcoming in Young by alleging on page 4 of the Office Action that "discovering the optimum ranges involves only routine skill in the art."

However, the USPTO's proposed interpretation of Young respectfully goes beyond merely optimizing a range. Instead of optimizing a range, **claim 1 claims a specific relationship between the quantity of UV rays emitted by the most downstream UV device and the other UV devices, and not merely an optimized variable or range**, as respectfully alleged by the USPTO. Thus, ordinary experimentation with the quantity of emitted UV rays would not result in the specifically claimed relationship between the quantity emitted by the **most downstream UV device and the other UV device**, as claimed in claim 1. Therefore, the USPTO's reasoning on pages 3-4 of the Office Action is respectfully incorrect.

For example, present Figures 2 illustrates one possible embodiment of the claimed structure quoted above. As seen in present Figure 2, an image recording section 2 can comprise four pairs, with each pair comprising a recording head 8 and a UV irradiating device 10. According to present Figure 2, the recording medium feeding direction is X, **so the most downstream UV irradiating device is the furthest left device**, i.e. the one paired with the recording head marked Y.

As explained on pages 18-19 of the present specification, **the most downstream irradiating device 11** is configured to emit a **larger quantity of UV rays than the other irradiating devices.** This is done, for example, by increasing the number of UV ray sources 11 in the most downstream irradiating device, as explained on page 19 of the present

specification. In contrast, there is no indication in Young that the most downstream UV light emitting device subsystem, such as subsystem 150 in Figure 2 of Young, contains more UV ray sources or otherwise emits a larger quantity of UV rays than the other subsystem 140.

The specifically claimed structure of claim 1 is important and non-trivial because it provides significant inherent advantages over conventional structures. For example, configuring the recording heads and UV irradiating devices as specifically claimed in claim 1 allows one to reduce electric power consumption of the device.

Specifically, as seen in present Figure 2, ejected black ink (from the recording head marked "K") would be irradiated by each of the four downstream irradiating devices, as the recording medium moves in the feeding direction. Similarly, ejected cyan ink would be irradiated by three downstream irradiating devices, ejected magenta ink would be irradiated by two downstream devices, and ejected yellow ink would be irradiated by a single downstream irradiation device.

Thus, because only a single device irradiates the yellow ink, it requires a larger quantity of rays from that single device than that required by the other color inks. Accordingly, in order to completely cure the ejected yellow ink, it is necessary for the most downstream irradiating device by itself to emit a quantity of UV rays sufficient to cure the ink ejected from the most downstream recording head. In contrast, multiple irradiating devices cure ink ejected from the upstream recording heads, so these inks are cured by the cumulative quantity of UV rays from each device.

It is respectfully noted that it is possible for all the irradiating devices to emit sufficient quantities of UV rays to completely cure each type of ink. However, this would require a large amount of electric power consumption and would seriously increase the load on the device. Accordingly, a device using the specifically claimed structure of claim 1 can cure all of the inks completely without significantly increasing the electric power consumption of the device.

In summary, Young respectfully does not teach or suggest the quantity of UV rays emitted by the most downstream irradiating device is larger than the quantity emitted by the other irradiating devices. Thus, it is respectfully asserted that the cited references, taken either

alone or in combination, do not teach all the claimed limitations of claim 1. Therefore, it is respectfully asserted that claim 1 is not obvious over the cited references.

B. The cited references do not teach or suggest that the intensity of ultraviolet rays emitted from the ultraviolet ray source arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than the intensity emitted from the other ultraviolet ray irradiating devices, as claimed in claim 8.

Regarding the limitations of claim 8 that claim in relevant part:

> "wherein **intensity** of the ultraviolet ray **emitted from the ultraviolet ray source arranged on the most downstream side** in the feeding direction of the recording medium, in the plurality of pairs, **is set to be larger** than that of the ultraviolet rays emitted from the ultraviolet ray source or the ultraviolet ray sources of the other ultraviolet ray irradiating device or each of the other ultraviolet ray irradiating devices," **(emphasis added)**

it is respectfully not seen where the cited references teach or suggest the claimed structure quoted above.

As noted above, the USPTO respectfully admits on pages 2-3 of the Office Action that Nedblake (Applicants respectfully assume that the USPTO means Nedblake) does not teach or suggest that the quantity, intensity, or wavelength of the UV device that is arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than in the other UV device. The USPTO respectfully attempts to overcome this deficiency in Nedblake by citing the Young reference.

Specifically, Young allegedly teaches in column 4, lines 50-60 that the wavelength of the UV device can be "properly selected." However, it is respectfully important to note that **Young only allegedly teaches selecting the wavelength;** Young respectfully does not teach or suggest anything about selecting the **intensity** of an ultraviolet ray. It is respectfully important to note that the **intensity** of UV rays claimed in claim 1 is a completely different property than the **wavelength** of UV rays taught in Young.

Additionally, as noted above, Young only teaches that the wavelength can be selected, and **Young teaches nothing about the specifically claimed relationship between the intensity of the UV rays emitted from the most downstream UV source and the other UV sources.** Instead, the USPTO respectfully alleges on page 4 of the Office Action that the

limitation would have been obvious because "discovering the optimum range involves only routine skill in the art." However, similar to the reasoning above in part A, claim 8 claims a specific relationship between the intensity of the most downstream UV device and the other UV devices. Thus, this specifically claimed relationship is more than merely optimizing a variable. Therefore, it is respectfully asserted that the USPTO's reasoning is incorrect.

Thus, it is respectfully asserted that the cited references, taken either alone or in combination, do not teach all the claimed limitations of claim 8. Therefore, it is respectfully asserted that claim 8 is not obvious over the cited references.

C. The cited references do not teach or suggest that the wavelength of ultraviolet rays emitted from the ultraviolet ray source arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than the wavelength emitted from the other ultraviolet ray irradiating devices, as claimed in claim 15.

Regarding the limitations of claim 15 that claim in relevant part:

> "wherein the **ultraviolet rays emitted from the ultraviolet ray source** or the ultraviolet ray sources of the ultraviolet ray irradiating device, which is **arranged on the most downstream side** in the feeding direction of the recording medium, in the plurality of pairs, **has a longer wavelength** or more longer wavelength components than a wavelength or longer wavelength components of the ultraviolet rays emitted from the ultraviolet ray source or the ultraviolet ray sources of the other ultraviolet ray irradiating device or each of the other ultraviolet ray irradiating devices," **(emphasis added)**

it is respectfully not seen where the cited references teach or suggest the claimed structure quoted above.

As noted above, the USPTO respectfully admits on pages 2-3 of the Office Action that Nedblake (Applicants respectfully assume that the USPTO means Nedblake) does not teach or suggest that the quantity, intensity, or wavelength of the UV device that is arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than in the other UV device. The USPTO respectfully attempts to overcome this deficiency in Nedblake by citing the Young reference.

However, as noted above, Young only allegedly teaches that the wavelength of a UV device can be selected, and Young does not teach or suggest anything about the specifically

claimed relationship between the wavelength of the UV rays emitted from the most downstream source and the other UV sources. In fact, the USPTO respectfully admits on pages 3-4 of the Office Action that "Young discloses the claimed invention **except for the wavelength of the UV device, which is arranged on the most downstream side in the feeding direction is larger than other UV.**" **(emphasis added).**

Instead, the USPTO respectfully alleges on page 4 of the Office Action that the limitation would have been obvious because "discovering the optimum range involves only routine skill in the art." However, similar to the reasoning above in parts A and B, claim 15 claims a specific relationship between the wavelength of the most downstream UV device and the other UV devices. Thus, this specifically claimed relationship is more than merely optimizing a variable. Therefore, it is respectfully asserted that the USPTO's reasoning on page 4 of the Office Action is incorrect.

Thus, it is respectfully asserted that the cited references, taken either alone or in combination, do not teach or suggest all the limitations of claim 15. Therefore, it is further respectfully asserted that claim 15 is not obvious over the cited references.

D. Further explanation.

Applicants respectfully note the following additional explanation.

In the Office Action, the USPTO respectfully alleges that Young teaches quantity/intensity/wavelength of the UV device which is arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than that of the other UV devices, on the basis of column 4, lines 50-60 of Young.

However, although Young allegedly teaches that one or more operating wavelengths can be selected according to a photosensitive wavelength range, Young only discloses that the wavelengths of individual light emitting devices can be changed, and does not disclose that wavelength of the UV device that is arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than that of the other UV device.

Furthermore, Young does not teach or suggest overstriking of ink, i.e., jetting an ink, curing the jetted ink, further jetting another ink on the cured ink, and further curing, as

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described in the present application. In order to cure both the inside ink and the most outside ink when overstriking, the specifically claimed relationship in claim 1, 8, or 15 is required.

Additionally, regarding the Nedblake reference, Nedblake does not teach or suggest that the quantity/intensity/wavelength of the UV device which is arranged on the most downstream side in the feeding direction of the recording medium is set to be larger than that of the other UV device.

Thus, it is respectfully asserted that the cited references, taken either alone or in combination do not teach or suggest all the claimed limitations of claims 1, 8, and 15. Thus, it is respectfully asserted that claims 1, 8, and 15 are not obvious over the cited references.

E. The dependent claims.

As noted above, it is respectfully asserted that independent claims 1, 8, and 15 are allowable. Therefore, it is further respectfully asserted that dependent claims 2-7, 9-14, and 16-20 are also allowable.

II. Conclusion.

Reconsideration and allowance of all of the claims is respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Please contact the undersigned for any reason. Applicants seek to cooperate with the Examiner including via telephone if convenient for the Examiner.

Respectfully submitted,

By _____
Daniel P. Lent
Registration No. 44,867

Date: April 30, 2007
CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 23413